REMARKS

Claims 1-26 remain pending in the application. It is proposed to amend claims 1, 4, 9, 14, 17, and 22 without introduction of new matter. Entry of these amendments and favorable reconsideration are respectfully requested in view of the above amendments and the following remarks.

The indication that claims 4-5, 9-13, 17-18, and 22-26 define allowable subject matter is noted with appreciation. It is now proposed to re-write claims 4, 9, 17, and 22 in independent form, including all of the limitations of the base claim and any intervening claims in order to put claims 4-5, 9-13, 17-18, and 22-26 into immediate condition for allowance. Entry of these amendments is therefore respectfully requested.

The courtesy extended by Examiner Moore and Primary Examiner Phunkulh to Applicant's representative in a telephone interview conducted on September 2, 2005 is noted with appreciation. During that interview, the parties discussed how Applicant's invention is patentably distinguishable over the prior art of record, and how relevant features of the invention are defined by the claims. Further details about the interview are presented in the following discussion.

Claims 1, 7, 14, and 20 again stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Thomas (U.S. Patent No. 6,400,233) when considered in view of Paik et al. (U.S. Patent No. 5,363,408). This rejection is respectfully traversed.

As explained in the Background section of the specification, the bandwidth in wireless digital communication systems is a limited resource. Consequently, in most communications standards, the frequency bandwidth of a transmitted signal is strictly regulated by the system specifications. While the standards often allow for some small spectrum leakage outside the desired frequency band and also for some signal distortions in the time domain to allow for cost-efficient and current-efficient transmitter architectures, the amount of permissible signal distortion is limited. In communication systems employing IQ-modulation, satisfying the system requirements can necessitate the use of high-performance power amplifiers that are expensive.

It can be advantageous to utilize a polar modulator when implementing a linear modulation-based system. However, linear modulation is optimized for linear signal generation with conventional IQ-modulators, and the generation of linear modulation with a polar modulator results in amplitude and phase signals having a very high bandwidth. This,

in turn, necessitates the use of very high quality components having sufficient bandwidth capability to effectively provide the high-bandwidth amplitude and phase signals. This makes the use of polar modulators very expensive, which largely negates the cost savings and current-consumption savings associated with the radio part of a system utilizing a polar modulator.

Various embodiments of the invention address this problem by providing techniques and apparatuses that reduce the phase signal and amplitude signal bandwidths of a polar-modulation signal, and that reduce the modulation depth of an IQ-modulation signal, while retaining the desired signal information and while satisfying system specification requirements, EVM requirements and spectrum-mask requirements such that cost-efficient and current-efficient polar modulators and/or power amplifiers can be utilized.

Accordingly, independent claim 1 defines a method of generating a radio frequency signal that represents a sequence of information bits, the method comprising, *inter alia*, "generating a resultant baseband signal by selectively generating *either* a non-distorted complex-valued baseband signal *or* a distorted complex-valued baseband signal, wherein selective generation is based upon values of information bits in the sequence of information bits". (Emphasis added.)

Independent claim 14 similarly defines an apparatus for generating a radio frequency signal, comprising, *inter alia*, "logic that generates a resultant baseband signal by selectively generating *either* a non-distorted complex-valued baseband signal *or* a distorted complex-valued baseband signal, wherein selective generation is based upon values of information bits in the sequence of information bits". (Emphasis added.)

Neither Thomas nor Paik et al. disclose or even suggest selectively generating either a non-distorted or a distorted signal. With this feature lacking, they of course also fail to disclose selection between the two alternatives being based upon values of information bits in the sequence of information bits. Consequently, no combination of the teachings of these two references can include these features. The Office has therefore failed to make out even a *prima facie* case of obviousness because one of the necessary criteria for such a rejection is that the prior art references, when combined, must teach or suggest all the claim limitations. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

What Thomas instead discloses is a distortion compensating apparatus for use in IQ modulation and demodulation techniques wherein a first distortion arrangement distorts the I-

signal by adding to the I-signal a first weighted function of the I-signal and a first weighted function of the Q-signal and a second distortion arrangement distorts the Q-signal by adding to the Q-signal a second weighted function of the I-signal and a second weighted function of the Q-signal, such that the weighted functions of the I-signal are independent of the Q-signal and the weighted functions of the Q-signal are independent of the I-signal. As is expressly stated in Thomas at, for example, column 4, lines 21-57, each of the weighting factors (A, B, C, D) is a constant. Thus, none of these can be selectively set to zero to eliminate distortion. From reading the text of Thomas and studying the figures, it is clear that distortion is always applied; there is no possibility disclosed or even suggested for selectively turning the distortion off, as would be required to satisfy the terms of Applicant's rejected claims.

Nor does Paik et al. make up for this deficiency. The Paik et al. patent does not discuss the deliberate addition of distortion to a baseband signal, and is instead concerned with a mode selective quadrature amplitude modulation communications system.

The Office relies on Thomas at column 4, lines 28-55 as allegedly showing "that the distorted compensated I-signal' and Q-Signal' is exclusively/selectively created/generated in order to reduce the distortion." However, this section of Thomas discloses only the generation of distortion that is always added to the original information signal. Nothing in this or any other part of Thomas discloses the possibility of selectively distorting or not distorting the signal.

These and other arguments were discussed in the above-mentioned telephonic interview with the Examiners. As understood by the undersigned attorney, agreement was reached that the features discussed above are patentably distinguishable over the prior art of record. However, the Examiners expressed a preference for these features to be recited differently in the claims in order to emphasize that a selection is made regarding what type of signal to generate, and then the signal is generated based upon the selection. Applicant believes that the existing claim language ("generating a resultant baseband signal by selectively generating either a non-distorted ... or a distorted ... based upon values of information bits ....") already defines selecting whether to generate a non-distorted signal or a distorted signal based upon values of information bits, and then generating the resultant baseband signal based upon the selection made. However, in the interest of expediting prosecution, Applicant has agreed to make the agreed-upon amendments to the independent claims. For reasons just stated, it is believed that the proposed amendments merely present in

different wording the same features already defined by the original independent claims 1 and 14. Thus, they are not believed to be narrowing amendments, nor do they present new matter or raise new issues for consideration.

For at least the foregoing reasons, claims 1 and 14 are believed to be patentably distinguishable over Thomas and Paik et al., regardless of whether these references are considered individually or in combination. Claims 7 and 20, which depend from claims 1 and 14 respectively, are patentable for at least the same reasons. It is therefore respectfully requested that the proposed amendments to claims 1 and 14 be entered, and that the rejection of claims 1, 7, 14, and 20 under Section 103, be withdrawn.

Claims 2, 3, 6, 15, 16, and 19 again stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Thomas and Paik as applied to claims 1 and 14, and further in view of Masheff (U.S. 4,696,017). This rejection is respectfully traversed.

Claims 2, 3, 6, 15, 16, and 19 variously depend from claims 1 and 14, and are therefore patentable over any combination of Thomas and Paik et al. for at least the reasons set forth above. The Masheff patent fails to make up for the deficiencies of Thomas and Paik et al. at least because it too fails to disclose or suggest a system that selectively generates either a non-distorted or a distorted signal. With this feature lacking, Masheff of course also fails to disclose selection between the two alternatives being based upon values of information bits in the sequence of information bits, as further required by the claims.

For at least the foregoing reasons, claims 2, 3, 6, 15, 16, and 19 are believed to be patentably distinguishable over any combination of Thomas, Paik et al., and Masheff. Accordingly, it is respectfully requested that the rejection of these claims under Section 103 be withdrawn.

Claims 8 and 21 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Thomas and Paik et al, as applied to claims 1 and 14, and further in view of Turcotte (U.S. 6,441,694). This rejection is respectfully traversed.

Claims 8 and 21 depend from claims 1 and 14, respectively, and are therefore patentable over any combination of Thomas and Paik et al. for at least the reasons set forth above. The Turcotte patent fails to make up for the deficiencies of Thomas and Paik et al. at least because it too fails to disclose or suggest a system that selectively generates either a non-distorted or a distorted signal. With this feature lacking, Turcotte of course also fails to

disclose selection between the two alternatives being based upon values of information bits in the sequence of information bits, as further required by the claims.

For at least the foregoing reasons, claims 8 and 21 are believed to be patentably distinguishable over any combination of Thomas, Paik et al., and Turcotte. Accordingly, it is respectfully requested that the rejection of these claims under Section 103 be withdrawn.

The application is believed to be in condition for allowance. Prompt notice of same is respectfully requested. If the Examiner has any further questions or comments concerning this application, he is invited to call the undersigned attorney at the telephone number indicated below in order to help expedite prosecution.

Respectfully submitted,
Potomac Patent Group PLLC

Date: September 6, 2005

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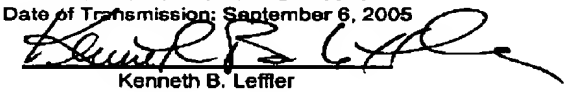
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